SEMESTER EXAMINATION, DECEMBER -2022

Course Name:-B.Tech(CSE) **Semester:- 3RD**

Paper Name:-Soft Computing **Paper Code:-TCS-301**

Time - 2 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

समय– 2 घण्टे + 20 मिनट प्रति घंटे अतिरिक्त–दृष्टिबाधित एवं सह लेखक परीक्षार्थियों के लिए। अधिकतम अंक–70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **04** marks. All questions are compulsory.
- Section B- Answer any **2 out of 4** given questions in maximum hundred **(150) words**. Each question carries **10 marks**.
- Section C- Answer any **2 out of 3** given questions in maximum five hundred **(250) words**. Each question carries **15 marks**.

निर्देश:

- प्रश्न पत्र में तीन खण्ड अ, ब, व स हैं। सभी खण्ड अनिवार्य हैं।
- खण्ड–अ में प्रत्येक प्रश्न **चार** अंक का है। सभी प्रश्न अनिवार्य हैं।
- खण्ड–ब में **चार** प्रश्नों में से किन्हीं **दो** प्रश्नों के उत्तर अधिकतम **डेढ़ सौ** (150) शब्दों में दें। प्रत्येक प्रश्न 10 अंक का है।
- खण्ड–स में **तीन** प्रश्नों में से किन्हीं **दो** प्रश्नों के उत्तर अधिकतम **ढाई सौ** (250) शब्दों में दें। प्रत्येक प्रश्न 15 अंक का है।

Section – A (खण्ड–अ)

Objective Questions(वस्तुनिष्ठ प्रश्न)

1. Answer all the following questions. **5×4=20**

निम्नलिखित सभी प्रश्न अनिवार्य हैं।

i) Which of the following is associated with fuzzy logic?
   a. Crisp set logic
   b. Two-valued logic
   c. Many-valued logic
   d. Binary set logic

ii) A perceptron can be defined as _____
   a. A double layer auto-associative neural network
   b. A neural network with feedback
   c. An auto-associative neural network
   d. A single layer feed-forward neural network with pre-processing

iii) A neuro software can be defined as:
   a. A powerful and easy neural network
   b. A software that is used to analyze neurons
   c. Software utilized by a neurosurgeon
   d. A software aimed to assist experts in the real world

iv) Which of the following models are utilized for learning?
   a. Neural networks
   b. Decision trees
   c. Propositional and FOL rules
   d. All of the above

v) Which of the following is true for unsupervised learning?
   a. Some specific output values are disclosed
   b. Some specific output values aren't disclosed
   c. No relevant inputs value is specified
   d. Both inputs as well outputs are specified

3, 1, 4, 2

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Section – B (खण्ड–ब)
Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any two of the following questions in maximum 150 words. **10×2=20**
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें।

i) Which type of searching is used by genetic algorithm?
ii) Why single layer perceptron is used?
iii) How is fitness genetic algorithm calculated?
iv) What are the various types of mutation techniques in soft computing? Also explain their types.

Section – C (खण्ड–स)
Descriptive Questions (विवरणात्मक प्रश्न)

3. Answer any two of the following question in maximum 250 words. **2×15=30**
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर अधिकतम 250 शब्दों में दें।

i) Define an artificial neural network. State the characteristics of an artificial neural network.
ii) What are the applications of Supervised Machine Learning in Modern Businesses?
iii) Explain genetics algorithm with flow diagram.

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